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Soil moisture uptake under different salinity levels for paddy crop

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Abstract

The essence of salinity problem starts from the fact that all irrigation waters contain some amount of dissolved salts. Soil water salinity is dependent on soil type, climate, water use and irrigation. Root water uptake pattern for paddy is studied for saline as well as non-saline conditions in the present study using non-linear root water uptake model. Experimental work had been carried out using two different levels of salinity (4dS/m and 6.25dS/m) and fresh water condition. Salinity effect on soil moisture had been studied by two approaches. viz. effect on crop efficient and effect on hydraulic conductivity. Based upon the experimental observation for less saline (4dS/m), high saline (6.25dS/m) and fresh water condition, exponential form of equation is established for the hydraulic conductivity. The results obtained for soil moisture depletion in the crop root zone shows significant improvement in simulation for saline cases with the use of non linearity parameter.

Key words: Salinity, O-R model, Crop co-efficient, Root water uptake, Hydraulic conductivity.